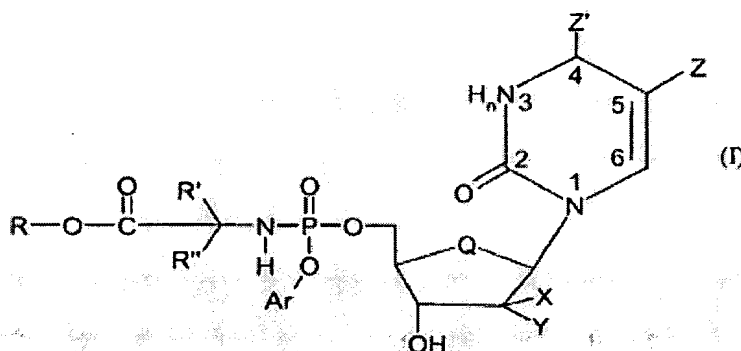


Listing of Claims

## CLAIMS.

1. (Original) A chemical compound having formula I:



wherein:

R is selected from the group comprising alkyl, aryl and alkylaryl;

R' and R'' are independently selected from the group comprising H, alkyl and alkylaryl, or

R' and R'' together form an alkylene chain so as to provide, together with the C atom to which they are attached, a cyclic system;

Q is selected from the group comprising -O- and -CH<sub>2</sub>-;

X and Y are independently selected from the group comprising H, F, Cl, Br, I, OH and methyl (-CH<sub>3</sub>);

Ar is a monocyclic aromatic ring moiety or a fused bicyclic aromatic ring moiety, either of which said ring moieties is carbocyclic or heterocyclic and is optionally substituted;

Z is selected from the group comprising H, alkyl and halogen; and

n is 0 or 1,

wherein when n is 0, Z' is -NH<sub>2</sub> and a double bond exists between position 3 and position 4, and

when n is 1, Z' is = O;

or a pharmaceutically acceptable derivative or metabolite of a compound of formula I;

with the proviso that, except where R is 2-Bu ( $-\text{CH}_2-\text{CH}(\text{CH}_3)_2$ ) and one of R' and R'' is H and one of R' and R'' is methyl ( $-\text{CH}_3$ ), when n is 1 and X and Y are both H, then Ar is not unsubstituted phenyl ( $-\text{C}_6\text{H}_5$ ).

2. (Original) A compound according to claim 1 wherein R is selected from the group comprising a  $\text{C}_{1-16}$  primary or secondary alkyl group, a  $\text{C}_{5-7}$  carbocyclic aryl group or a  $\text{C}_{1-6}$ alkyl $\text{C}_{5-11}$  aryl group.

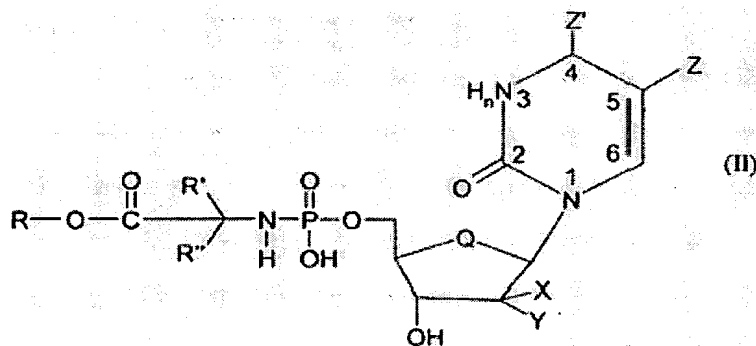
3. (Original) A compound according to claim 2 wherein R is selected from the group comprising methyl ( $-\text{CH}_3$ ), ethyl ( $-\text{C}_2\text{H}_5$ ) and benzyl ( $-\text{CH}_2\text{C}_6\text{H}_5$ ).

4. (Original) A compound according to claim 3 wherein R is benzyl.

5. (Currently amended) A compound according to ~~any one of the preceding claims~~claim 1 wherein Ar is an optionally substituted  $\text{C}_6$  monocyclic aromatic ring moiety, ~~ie is optionally substituted phenyl.~~

6. (Original) A compound according to claim 5 wherein Ar is selected from the group comprising  $-\text{C}_6\text{H}_5$ ,  $p\text{CF}_3\text{C}_6\text{H}_4-$ ,  $p\text{FC}_6\text{H}_4-$ ,  $p\text{NO}_2\text{C}_6\text{H}_4-$ ,  $p\text{ClC}_6\text{H}_4-$  and  $o\text{ClC}_6\text{H}_4-$ .

7. (Currently amended) A chemical compound having formula II:



wherein n, Q, R, R', R'', X, Y, Z and Z' ~~have the meanings described in claim 1,~~ Q is selected from the group comprising -O- and -CH<sub>2</sub>-, R is selected from the group comprising alkyl, aryl and alkylaryl, and H, R' and R'' are independently selected from the group comprising H, alkyl and alkylaryl, or

R' and R" together form an alkylene chain so as to provide, together with the C atom to which they are attached, a cyclic system, X and Y are independently selected from the group comprising H, F, Cl, Br, I, OH and

methyl (-CH<sub>3</sub>) and additionally R can be H, with provisos that:

when n is 1, X and Y are both H, R is methyl (-CH<sub>3</sub>), one of R' and R" is H and one of R' and R" is methyl (-CH<sub>3</sub>), then Z is not -CH=CHBr;

when n is 1, X and Y are both H, R is methyl (-CH<sub>3</sub>), one of R' and R" is H and one of R' and R" is phenylethyl, phenylmethyl, indol-3-ylmethyl or indol-3-ylethyl, then Z is not F; and

when n is 0, X is not H.

8. (Currently amended) A compound according to ~~any one of the preceding claims~~ claim 1 wherein R' and R" are, independently, selected from the group comprising H, C<sub>1-6</sub> primary, secondary and tertiary alkyl, C<sub>1-3</sub>alkylC<sub>5-7</sub> aryl, or, when together they form an alkylene chain, they provide, together with the C atom to which they are attached, a C<sub>3-8</sub> carbocyclic aliphatic ring.

9. (Original) A compound according to claim 8 wherein R' and R" are, independently, selected from the group comprising H, methyl, benzyl and -CH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, or, R' and R" together with the C atom to which they are attached, provide a C<sub>5-6</sub> ring.

10. (Original) A compound according to claim 9 wherein R' and R" are each methyl.

11. (Original) A compound according to claim 9 wherein one of R' and R" is H and one of R' and R" is methyl.

12. (Original) A compound according to claim 9 wherein the carbocyclic ring is a pentyl ring.

13. (Currently amended) A compound according to ~~any one of the preceding claims~~ claim 1 wherein R' and R" correspond to the side chains of a naturally occurring amino acid.

14. (Currently amended) A compound according to ~~any one of the preceding claims~~ claim 1 wherein Z is selected from the group comprising H, C<sub>1-6</sub>alkyl, substituted C<sub>1-6</sub>alkyl, C<sub>1-6</sub>alkenyl, substituted C<sub>1-6</sub>alkenyl, C<sub>1-6</sub>alkynyl, and halogen.

15. (Currently amended) A compound according to ~~any one of the preceding claims~~ claim 1 wherein Q is O.

16. (Currently amended) A compound according to ~~any one of the preceding claims~~ claim 1 wherein when n is 1, each of X and Y is H.

17. (Currently amended) A compound according to ~~any one of claims 1 to 15~~ claim 1 wherein when n is 0, each of X and Y is F.

18. (Currently amended) A compound according to ~~any one of claims 1 to 15~~ claim 1 wherein when n is 0, X is OH and Y is H.

19. (Currently amended) A compound according to ~~any one of claims 1 to 15~~ claim 1 wherein when n is 0, X is H and Y is OH.

20. (Original) A compound selected from the group comprising:

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(ethoxy-L-alaninyl)]-phosphate (CPF 3)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(benzoxo-L-alaninyl)]-phosphate (CPF 2)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(methoxy-L-alaninyl)]-phosphate (CPF 5)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(ethoxy-L-alaninyl)]-phosphate (CPF 6)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(benzoxo-L-alaninyl)]-phosphate (CPF 7)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(methoxy-L-alaninyl)]-phosphate (CPF 10)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(ethoxy-L-alaninyl)]-phosphate (CPF 9)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(benzoxo-L-

alaninyl)]-phosphate (CPF 8)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[para-(trifluoromethyl)-phenyl-(methoxy-L-alaninyl)]-phosphate (CPF 15)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[para-(trifluoromethyl)-phenyl-(ethoxy-L-alaninyl)]-phosphate (CPF 25)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-trifluorophenyl-(benzoxy-L-alaninyl)]-phosphate (CPF 4)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(methoxy-L-alaninyl)]-phosphate (CPF 13)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(ethoxy-L-alaninyl)]-phosphate (CPF 11)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(benzoxy-L-alaninyl)]-phosphate (CPF 12)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[phenyl-(methoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 26)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[phenyl-(ethoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 27)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[phenyl-(benzoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 14)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-nitrophenyl-(methoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 45)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-nitrophenyl-(ethoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 46)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-nitrophenyl-(benzoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 47)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(methoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 42)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(ethoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 43)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[4-chlorophenyl-(benzoxy- $\alpha,\alpha$ -dimethylglycynyl)]-phosphate (CPF 44)

(E)-5-(2-bromovinyl)-2'-deoxyuridine-5'-[para-(trifluoromethyl)-phenyl-(benzoxy- $\alpha,\alpha$ -dimethylglycynyl)]-phosphate (CPF 48)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(methoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate

(CPF 16)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(ethoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate

(CPF 17)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(benzoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate

(CPF 18)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(methoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 19)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(ethoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 20)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(benzoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 21)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(methoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 22)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(ethoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 23)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-fluorophenyl-(benzoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 24)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-chlorophenyl-(methoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 32)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-chlorophenyl-(ethoxy- $\alpha,\alpha$ -cycloleucynyl)]-phosphate (CPF 33)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(methoxy-L-phenylalaninyl)]-phosphate (CPF 36)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-chlorophenyl-(benzoxy- $\alpha,\alpha$ -cycloleucinyl)]-phosphate (CPF 34)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-trifluorophenyl-(methoxy- $\alpha,\alpha$ -cycloleucinyl)]-phosphate (CPF 28)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-trifluorophenyl-(ethoxy- $\alpha,\alpha$ -cycloleucinyl)]-phosphate (CPF 29)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-trifluorophenyl-(benzoxy- $\alpha,\alpha$ -cycloleucinyl)]-phosphate (CPF 30)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(methoxy-L-phenylalaninyl)]-phosphate (CPF 36)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(methoxy-L-leucinyl)]-phosphate (CPF 35)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(benzoxy-L-leucinyl)]-phosphate (CPF 37)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-nitrophenyl-(benzoxy-L-leucinyl)]-phosphate (CPF 38)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[para-chlorophenyl-(benzoxy-L-leucinyl)]-phosphate (CPF 39)

(E)-5-(2-Bromovinyl)-2'-deoxyuridine-5'-[phenyl-(2-butyl-L-alaninyl)]-phosphate

Gemcitabine-[phenyl-(benzoxy-L-alaninyl)]-phosphate (CPF 31)

Gemcitabine-[para-chlorophenyl-(benzoxy-L-alaninyl)]-phosphate (CPF 40) and

Gemcitabine-[para-chlorophenyl-(benzoxy- $\alpha,\alpha$ -dimethylglycinyl)]-phosphate (CPF 41).

21. (Currently amended) A compound according to any one of claims 1 to 6, ~~claim 20, or to any one of claims 8 to 19 as dependent on any one of claims 1 to 6,~~ claim 1 for use in a method of treatment, preferably in the prophylaxis or treatment of cancer, with the proviso that when n is 1, X and Y are both H, one of R' and R'' is H and

one of R' and R" is methyl (CH<sub>3</sub>), R is 2-Bu(-CH<sub>2</sub>-CH-(CH<sub>3</sub>)<sub>2</sub>) or R is benzyl (-CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>), then Ar can be unsubstituted phenyl (-C<sub>6</sub>H<sub>5</sub>).

22. (Currently amended) Use of a compound according to ~~any one of claims 1 to 6, claim 20, or to any one of claims 8 to 19 as dependent on any one of claims 1 to 6,~~claim 1 in the manufacture of a medicament for the prophylaxis or treatment of cancer, with the proviso ~~set out in claim 21 that when n is 1, X and Y are both H, one of R' and R" is H and one of R' and R" is methyl (CH<sub>3</sub>), R is 2-Bu(-CH<sub>2</sub>-CH-(CH<sub>3</sub>)<sub>2</sub>) or R is benzyl (-CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>), then Ar can be unsubstituted phenyl (-C<sub>6</sub>H<sub>5</sub>).~~

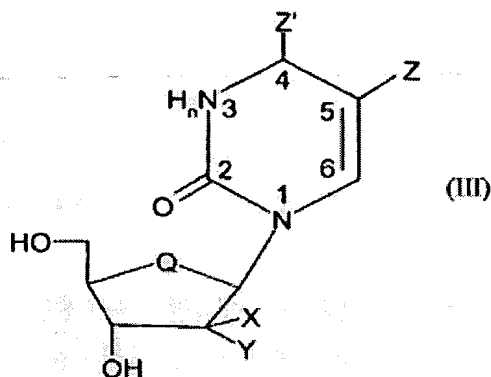
23. (Currently amended) A method of prophylaxis or treatment of cancer comprising administration to a patient in need of such treatment an effective dose of a compound according to ~~any one of claims 1 to 6, claim 20, or to any one of claims 8 to 19 as dependent on any one of claims 1 to 6,~~claim 1 with the proviso ~~set out in claim 21 that when n is 1, X and Y are both H, one of R' and R" is H and one of R' and R" is methyl (CH<sub>3</sub>), R is 2-Bu(-CH<sub>2</sub>-CH-(CH<sub>3</sub>)<sub>2</sub>) or R is benzyl (-CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>), then Ar can be unsubstituted phenyl (-C<sub>6</sub>H<sub>5</sub>).~~

24. (Currently amended) A pharmaceutical composition comprising a compound according to ~~any one of claims 1 to 6, claim 20, or to any one of claims 8 to 19 as dependent on any one of claims 1 to 6,~~claim 1 in combination with a pharmaceutically acceptable carrier, diluent or excipient.

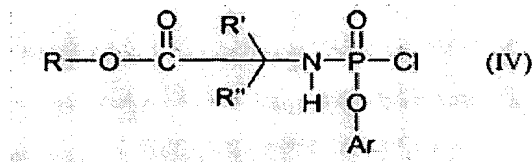
25. (Currently amended) A method of preparing a pharmaceutical composition comprising the step of combining a compound according to ~~any one of claims 1 to 6, claim 20 or any one of claims 8 to 19 as dependent on any one of claims 1 to 6,~~claim 1 with a pharmaceutically acceptable excipient, carrier or diluent.

26. (Original) A process for the preparation of a compound of formula I according to claim 1, the process comprising reacting of a compound of formula (III):





with a compound of formula (IV)



wherein Ar, n, Q, R, R', R'', X, Y, Z' and Z'' have the meanings described in claim 1.

27. (New) A compound according to claim 7 wherein R' and R'' are, independently, selected from the group comprising H, C<sub>1-6</sub> primary, secondary and tertiary alkyl, C<sub>1-3</sub>alkylC<sub>5-7</sub> aryl, or, when together they form an alkylene chain, they provide, together with the C atom to which they are attached, a C<sub>3-8</sub> carbocyclic aliphatic ring.

28. (New) A compound according to claim 27 wherein R' and R'' are, independently, selected from the group comprising H, methyl, benzyl and -CH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, or, R' and R'' together with the C atom to which they are attached, provide a C<sub>5-6</sub> ring.

29. (New) A compound according to claim 28 wherein R' and R'' are each methyl.

30. (New) A compound according to claim 28 wherein one of R' and R'' is H and one of R' and R'' is methyl.

31. (New) A compound according to claim 28 wherein the carbocyclic ring is a pentyl ring.

32. (New) A compound according to claim 7 wherein R' and R'' correspond to the side chains of a naturally occurring amino acid.

33. (New) A compound according to claim 7 wherein Z is selected from the group comprising H, C<sub>1-6</sub>alkyl, substituted C<sub>1-6</sub>alkyl, C<sub>1-6</sub>alkenyl, substituted C<sub>1-6</sub>alkenyl, C<sub>1-6</sub>alkynyl, and halogen.

34. (New) A compound according to claim 7 wherein Q is O.

35. (New) A compound according to claim 7 wherein when n is 1, each of X and Y is H.

36. (New) A compound according to claim 7 wherein when n is 0, each of X and Y is F.

37. (New) A compound according to claim 7 wherein when n is 0, X is OH and Y is H.

38. (New) A compound according to claim 7 wherein when n is 0, X is H and Y is OH.

39. (New) A pharmaceutical composition comprising a compound according to claim 7 in combination with a pharmaceutically acceptable carrier, diluent or excipient.

40. (New) A method of preparing a pharmaceutical composition comprising the step of combining a compound according to claim 7 with a pharmaceutically acceptable excipient, carrier or diluent.